

University of Colorado School of Medicine

Clinician-Educators, “Non-Traditional” Scholarship and Faculty Promotion:

Recognizing the Scholarship of Education, Application and Integration

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A. Background

In 1997 the School of Medicine (SOM) revised its promotion and tenure policies, separating promotion from tenure and expanding the definition of scholarship. Citing Ernest Boyer and the Carnegie Foundation’s 1990 report, *Scholarship Reconsidered: Priorities of the Professoriate*,¹ the SOM broadened the definition of scholarship to include the discovery, integration, teaching and application of knowledge.

One important objective of the SOM’s decision to define “scholarship” broadly was to support the growing number of clinician-educators, by bringing the promotion policies of the SOM and the job assignments of clinicians and educators into closer alignment. Promotion and tenure review committees are now able to review a broad range of scholarly products, apart from published, peer-reviewed papers.

Clinicians and teachers often ask how they can participate in scholarship that is meaningful and relevant to their work. For example, how can development of an innovative course or leadership of a curriculum committee be turned into scholarship? How does leadership of a clinical pathway or quality improvement committee become scholarship? This document addresses these and other questions.

B. The Requirement for Scholarship

According to the *Rules of the School of Medicine*, “All faculty in the Regular Faculty Series will be required to participate in scholarship, as broadly defined.”² Furthermore:

- All scholarship implies creativity. The central purposes of scholarship and creative work are to deepen understanding and to advance and disseminate knowledge.
- The *Rules* emphasize a broad definition of scholarship, but with two requisite conditions: First, all scholarship must reflect creative, interpretive or innovative work; and second, scholarship is meaningful only when it can be shared, read, understood and critiqued by others.
- It follows that there must be *products of scholarship*. These products must be in a format that can be evaluated, which would normally mean a written format, but could include digital, web-based or

¹ Boyer EL. *Scholarship reconsidered: Priorities of the professoriate*. Princeton, N.J.: Princeton University Press and the Carnegie Foundation for the Advancement of Teaching, 1990.

² Faculty in the Clinical Practice Series are encouraged, but are not required, to participate in scholarship.

- electronic formats. Stated differently, faculty members seeking promotion or tenure must provide *tangible evidence* of their scholarship, whether published in traditional journals or in other formats.
- *Associate professors* in the Regular Series must demonstrate “meritorious” scholarship. *Full professors* must achieve “excellence” in scholarly activity. The criteria for excellence may vary, depending on the type of scholarship submitted. However, the criteria for excellence in all domains will necessarily include: important goals; appropriate methods; a demonstrable connection to existing knowledge or contemporary work undertaken by others; significant impact or results; and dissemination to peers. The SOM *Promotion Matrix* highlights a broad range of scholarship activities that will be recognized as “meritorious” or “excellent.”

C. The Four Types of Scholarship

The SOM recognizes the following four types of scholarship, as adapted and modified from concepts developed by Ernest Boyer and others.³ Only one of these types of scholarship (the “scholarship of discovery”) requires hypothesis-driven research and peer-reviewed publications. In fact, the *Promotions Matrix* (Appendix A of the *Rules*) includes numerous examples of scholarship that are pertinent to clinicians, scientists, scholars and teachers.

The Scholarship of Discovery (Traditional Research)

The “scholarship of discovery” refers to traditional, hypothesis-driven research that results in the generation of new knowledge. Basic, clinical, translational, educational and other forms of research are highly valued by the School of Medicine. As outlined in the *Promotion Matrix*, “excellence” in research is usually demonstrated through peer-reviewed scientific publications, competitive grant funding, a national or international reputation, and evidence of originality, creativity and influence as an investigator.

Note: The School of Medicine recognizes the importance of inter-disciplinary team science and the need for collaboration among investigators. Therefore, as recommended by the National Academy of Science, the School of Medicine defines an “independent investigator” as one who demonstrates “independence of thought” --- that is, one who has defined a research question, who has chosen or developed the best strategies and approaches to address that question, and who has contributed distinct intellectual expertise to successful research programs. See the *Dossier Building Guide* for more information about how team science, multi-author publications and other collaborative work is recognized for promotion or tenure.

Scholarship of Application

The “scholarship of application” includes activities that build bridges between theory and practice or that apply knowledge to practical problems. Examples include development of new medical treatment modalities, clinical care pathways, or activities that address community health care needs, that shape public policy on health care or that promote quality of care and patient safety and advance the science and practice of health care quality improvement.

³ Boyer, Ernest, “Scholarship Reconsidered: Priorities of The Professoriate,” Carnegie Foundation for the Advancement Of Teaching, Princeton University Press, 1990; Glassick D, Huber MR, Maeroff GI. Scholarship assessed: Evaluation of the Professoriate.1997; San Fransico, CA: Jossey-Bass; Simpson D, Yaris LM, Carek PJ. Defining the scholarly and scholarship common program requirements. J Grad Med Ed. 2013;5: 539-540.

Among the most common “products of applied scholarship:” white papers or reports to state or national organizations; clinical guidelines that improve patient care (published, presented, distributed or posted on web sites); innovative clinical techniques or practices that benefit patients; and leadership of quality improvement activities (with documentation of improved services or outcomes). Please see Section F (below) for more information about documenting clinically-related scholarship.

Scholarship of Teaching

The “scholarship of teaching” refers to activities that “leave the classroom” --- that is, accomplishments that go beyond being an effective teacher. The scholarship of teaching focuses on the development of new courses or teaching methods, assessments of learning outcomes, and preparation and dissemination of highly effective curricula, syllabi, laboratory exercises, educational videos, web sites, educational podcasts, patient simulations, problem-based learning cases, or other instructional materials. Please see Sections E and G (below) for more information about documenting the scholarship of teaching.

Scholarship of Integration

The “scholarship of integration” (horizontal scholarship) includes creative syntheses or analyses that define “connections across disciplines” or bring new insights to bear on original research. The scholarship of integration seeks to interpret, analyze and draw together the results of original research or creative work. Review articles, clinical case reports, and books and book chapters are examples of the scholarship of integration. Recent examples of clinically-related scholarship have included reviews, book chapters and articles covering topics such as diabetes management, disease prevention in under-served populations, assessing suicide risk, smoking cessation, medication-assisted treatments of patients with substance use disorders, end-of-life care, health problems during pregnancy, and other topics. These works were rated based on several criteria, including originality, grounding in scientific evidence, and use and acceptance by peers. Please see Section F (below) for more information about documenting clinically-related scholarship.

NOTE: Publications in the medical and healthcare humanities, including musical and artistic works are also considered as examples of the scholarship of integration.

D. Scholarship and the Clinician-Educator: Examples of the Scholarship of Integration, Application and Teaching

The Scholarship of Integration

- A psychologist was promoted to Associate Professor based on tangible evidence of scholarship in a well-defined area of focus and expertise. He was a specialist in the psychology of healing after severe burn injuries. He had presented numerous papers at national meetings and had written two patient education booklets that described the stages of recovery after burns, the need for supportive services and the benefits of burn camps for children. His scholarship also included co-authoring and producing 5 peer-reviewed videotapes about the emotional experiences of children with burn injuries, aimed at audiences of parents, peer providers and community leaders.

- A faculty radiologist had focused on computer-assisted learning in radiology, both in her department and on a national stage. She had developed a computerized radiology teaching curriculum for medical students and a web-based radiology teaching file for residents and students (example of the scholarship of teaching). These learning tools included evaluation worksheets that enabled medical students to provide feedback to the department in order to improve the teaching files. She published an invited, non-peer reviewed article summarizing this work. She also wrote an extensive 150-item question-and-answer self-assessment program for community-based radiologists. The questions, which covered key topics in chest radiology, were thoroughly referenced, researched and tested. They were adopted by the American College of Radiology's Continuous Professional Improvement project and are now available to all practice-based radiologists around the country. These contributions were judged as outstanding examples of the scholarship of teaching and integration.

The Scholarship of Application

- An Assistant Professor served as medical director of several busy ambulatory clinics that were described by external referees as among the best-known and most imaginative in the nation. He had received several large practice management grants, which had allowed him to develop, test and implement several innovative health care delivery techniques. Among the most novel were systems to integrate the care delivered by students, physicians, physician assistants and other health professionals in such disciplines as psychology, pharmacy, occupational medicine and sports medicine. He had also developed state-of-the-art practice management curricula for learners in these settings, which outlined novel approaches to integrate clinical care and teaching and conserve resources (the scholarship of teaching). There was evidence that his practice management curricula and programs had led to improvements in health care delivery and had reduced overhead and other costs. After careful review, the Faculty Promotions Committee accepted these achievements as outstanding products of the scholarship of application.
- A busy Assistant Professor, who specialized in infectious diseases, devoted about 80 percent of her working week to patient care duties and teaching. She served as director of a busy clinic for patients with HIV-related diseases. As practice director, she developed several innovative strategies to coordinate medical and pharmacy services, and she demonstrated that these strategies reduced the need for hospital admission for patients with HIV. She submitted carefully analyzed data demonstrating dramatic reductions in mortality and costs, and each of these improvements in outcomes exceeded national benchmarks and the improvements that might be expected only from the use of newer drugs to treat HIV-related infections. Although the Faculty Promotions Committee encouraged her to publish these results more widely in peer-review journals, the committee accepted these written practice descriptions, interventions and outcomes summaries as examples of the scholarship of application.
- A member of the geriatrics faculty spent several years developing methods to improve the medical care of older patients, based on early recognition of common geriatric syndromes, combined with estimates of functional decline, mortality risk and adaptive capacities. His written scholarship included five "white papers" invited by Health Maintenance Organizations, professional societies, a national foundation and two government agencies (Medicare and the Congressional Budget Office). These papers outlined health services research priorities for

geriatric care and formed the basis of a later funding initiative by a large national foundation. While not published in traditional medical journals, his work had been accepted by a broad and respected community of scholars and policy-makers and had led to new insights regarding the delivery of health services to senior citizens. This body of work was rated as an exceptional example of the scholarship of application --- activities that address consequential public health problems, propose solutions and help shape public policy.

- An Assistant Professor in the Department of Family Medicine served as Medical Director of the state's second-largest community health center. He had emerged as a state leader in efforts to strengthen the health care safety net for low income and vulnerable populations. He had obtained funding from multiple sources to develop and implement innovative programs to improve health care access among immigrant and migrant populations in urban Colorado, including reproductive services for teens, mobile health stations, expanded mental health services, diabetes screening programs and collaborative efforts with the Secretary of Health in Guanajuato, Mexico. His scholarship was also innovative and influential. One example was the monograph, "*Entérese! Una guía de supervivencia para los recién llegados a Colorado* (Welcome! A survival guide for recent arrivals to Colorado). Preparation and statewide distribution of this guidebook was funded by a grant.

The Scholarship of Teaching

- An Assistant Professor had more than 90 percent of her work week committed to clinical practice and teaching. She worked in an outpatient clinic, caring primarily for unhoused, impoverished and uninsured patients. She had written an educational manual focusing on principles of caring for uninsured and under-served patients, and this manual had been distributed to, and utilized by, medical students and residents rotating at several homeless and indigent care clinics. Upon review, this manual was judged to be an excellent example of teaching scholarship. It was also an example of the scholarship of application, as it described innovative techniques to improve health care delivery in a particularly challenging health care setting.
- A family physician (Assistant Professor) was a specialist in end-of-life care and the spiritual aspects of healing and caring. In addition to a busy clinical practice, he served as medical director of several hospices and hospice alliances. He developed competency-based curricula for medical students and family medicine residents, covering the care of dying patients, pain palliation and spirituality. This curriculum was adopted by family medicine residencies throughout the state. In addition, his work in curriculum development had been recognized nationally, as evidenced by a large number of invited presentations and by receipt of a large training grant.
- An Assistant Professor maintained a full-time clinical practice in anesthesiology, in both the operating room and in the pain care clinic. He was promoted to Associate Professor based primarily on his outstanding contributions to clinical service and residency education. His curriculum vitae listed three peer-review articles and two book chapters. The Faculty Promotions Committee was also impressed by two unpublished "products" representing the scholarship of teaching. One was a novel Pain Medicine Policy and Procedures Manual, which served as an educational and clinical practice guide for residents and faculty. The second was a thorough revision of the department's Acute Pain Service Resident Program Manual. He had also written and distributed evidence-based guidelines for patient-controlled epidural analgesics

and several protocols for use of specific analgesic drugs, which were considered as examples of the scholarship of application.

E. Documenting Teaching Scholarship

Educational scholarship is more than being “an excellent teacher.” To be considered educational scholarship, your work must extend beyond the classroom or the clinic. Your work must reflect creativity and leadership. And you must be able to show tangible “products” of scholarship.” As outlined in the Rules, “*The products of all scholarship must be in a format that can be evaluated, which would normally mean a written format but could include web-based or electronic formats.*” Regularly, the Faculty Promotions Committee has accepted educational manuals for students, innovative competency-based curricula, educational videotapes, simulations, problem-based learning exercises, and computer-assisted learning programs as examples of the scholarship of teaching. You should include links or references to these scholarly works in your Teaching Portfolio. **NOTE:** Copies of lecture slides and notes are not considered teaching scholarship and should not be included in your promotion dossier.

If your work as a teacher includes significant course leadership, curriculum development or innovation, it will be important to describe your accomplishments in an organized, scholarly manner. The goal is to explain to the promotions committee and other reviewers the importance, reach and impact of your work as a teacher, course leader or educational administrator.

To document educational scholarship, you will need to prepare one or more descriptive narratives. Your narrative will help you demonstrate your knowledge of the content as well as your awareness of educational processes and varied methods of presentation. To the extent possible, you should use your narrative to demonstrate the manner in which your work meets these concrete tests of educational scholarship:

- **There are clear goals:** What need or gap in the curriculum did the course fill?
- **Content of the course:** How was the content of the course or program selected (for example, published model curricula, scientific literature review, consensus guidelines)? What literature was reviewed? Did you integrate information and perspectives from different clinical, biologic or sociologic disciplines?
- **Appropriate methods:** What techniques were selected (for example, small group workshops, lectures, on-line resources, or simulations). Why? What methods did you use to help define the content, as well as the logic, sequencing, organization, relevance and interdisciplinary connections, of the course? Did you incorporate methods in your course to encourage and evaluate independent learning and critical thinking by learners?
- **Significant results:** What was the impact of the course or curriculum? Who has taken the course? Was learning measured? Include before-after test scores, changes in attitudes, knowledge or behavior, favorable evaluations or other measures. Describe the manner in which you relied on feedback from stakeholders (learners or colleagues) and respected peers from other schools to evaluate or improve the course. Has it been integrated into the core curriculum? Has the course content been presented, published or otherwise

disseminated locally or nationally?

- **Continuous evaluation:** What strategies have you developed for ongoing evaluation and improvement of the course or curriculum?
- **Educational products (scholarship):** Describe, and include links or references to, educational “products,” such as innovative syllabi, laboratory manuals, simulations, web sites, videos or podcasts that can be reviewed by promotions committee members.
- **Clear description of your leadership or creative role.**

F. Documenting Clinically-Related Scholarship (The Scholarship of Application and Integration)

Even the busiest clinicians may have opportunities to engage in meaningful scholarship, based on their expertise in patient care, their leadership of clinical programs, or their regional or national reputations. Remember that the “scholarship of integration” includes books, book chapters, review articles, videos, case reports and other similar contributions. These are especially valued by promotion review committees if they reflect an area of focus and expertise.

Clinicians can also demonstrate scholarship by submitting published or unpublished materials related to the care of patients, such as new practice modules, clinical guidelines, quality improvement studies, utilization reviews or healthcare outcomes reports, or significant participation in clinical trials.

In general, to qualify as scholarship, the clinical guidelines, utilization review, quality assessment or other project should include:

- **Clear goals and objectives** (addressing specific gaps or needs in patient care or health services);
- **Use of appropriate methods** to assess healthcare quality or measure outcomes;
- **Significant results** (for examples, improved outcomes, greater value or efficiency, increased patient satisfaction) that can be reviewed;
- **Evidence of creativity** and leadership;
- **Evidence of dissemination** of the results, through articles, presentations, or integration into current clinical practice.

G. Career Planning: Turning Committee Work and Program Leadership into Scholarship

If you have significant (and time-consuming) educational or clinical leadership roles, here are some recommendations to help you document “scholarship.”

- Assume responsibility for a “big-picture” area --- an elective, a course, a laboratory module, an area of curriculum innovation, an innovative clinical program or novel practice. Collaborate with others, but also be a leader --- and document your leadership roles, titles and responsibilities.
- Document how your work meets the other concrete tests of scholarship (See earlier outline).
- Focus on developing important and reviewable “products” of your teaching or clinical scholarship. Examples are highlighted in earlier sections of this Guide. Insist that your name remains attached to these scholarly works that will be presented to the school’s promotions committee. Decide on your colleagues’ roles and even “authorship” in advance, just as you would in the early stages of a research project.
- Try to judge, and even expand, the impact of your work. Consider not only its eventual use school-wide but also whether the information can be disseminated on a regional or national level. Articulate in specific terms how your work has been read, shared, understood and critiqued by others. Consider preparing summaries of your work that are suitable for publication in peer-reviewed journals.